

FEATURES

- 2/3" image format
- Back-thinned CCD for high sensitivity
- Enhanced blue response
- 768 pixels/line
- Automatic image enhancement
- Fully automatic operation over 9 decades of illumination with a F1.4 T350 Auto-iris lens
- Analogue and Camera Link-compatible digital outputs
- On screen display for manual control/monitoring
- 12 V DC supply (see note 1)
- Fan-less cooling

APPLICATIONS

- Airborne surveillance
- Ground-based surveillance
- Underwater imaging (enhanced blue response)
- Driver view enhancement
- Commander's night-sight
- Scientific imaging

INTRODUCTION

The L3C216 series provides all the benefits of the existing L3Vision™ range in a smaller package, and demands less power. The 2/3" format sensor allows use with smaller optical components, further reducing system payload. Since the sensor is back-thinned, performance is similar to that obtained with e2v's existing 1" format sensors. An improved CCD manufacturing process reduces horizontal smear.

TYPICAL PERFORMANCE

Limiting resolution576 TVL pph
 Signal to noise (1 mlx faceplate)35 dB
 Modulation at 576 TVL pph 50% (excludes lens)
 Power consumption (see note 2) 6 W typ (normal scene)

GENERAL DATA

Sensor

	L3C216-06	L3C216-05	
Imaging area.....	9.06 x 6.62	9.06 x 6.62	mm
Pixel size.....	11.5 x 23	11.5 x 27	µm
Image format....	768 (H) x 288 (V)	768 (H) x 244 (V)	pixels
Sensor temperature (see note 3)	0 °C factory set-point, adjustable		
Spectral range (see note 4)	400 to 1060 nm		

Mechanical

Dimensions
(see outline and note 5)..... 71 x 71 x 80 mm nominal



Electrical

Power input:
 HR10 connector (see note 6)0.5A typ., 1.5A max
 Input voltage 10 to 14 V

Analogue video:
 BNC connector..... CCIR (L3C216-06) or EIA (L3C216-05)
 Source impedance 75 Ω

Camera link (MDR connector) 12-bit video:
 Frame sync on TX/RX23

Camera configuration..... via serial link

Video auto-iris:
 4-pin connector +12 V DC and video (on top flange)

I/O connector (15-way Hi-density D):
 Pixel, Line, Field and Frame Sync outputs.....LVDS
 RS232 Tx and Rx.....±5 V
 Alternative video outputparalleled with BNC
 Mixed sync genlock input.....single-ended, logic level
 Uncommitted input.....single-ended, logic level

ENVIRONMENTAL

The camera complies with EU Directive 2002/95/EC, the RoHS Directive, restricting the use of hazardous substances in electronic equipment.

The camera falls within the scope of EU Directive 2002/96/EC, the WEEE Directive, governing disposal at end of life. Users should contact e2v technologies (uk) limited or its distributors for disposal information.

Operating temperature range (see note 7).....-35 to +55 °C
 Storage temperature range.....-40 to +70 °C
 Relative humidity..... 95% max
 Altitude (non-operational): 12.2 km (40,026 ft) max
 Vibration/shock: .. DEF STAN 00-35 (Part 5)/3 Chapter 6-02
 DEF STAN 00-35 (Part 3)/3 Chapter 2-03

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e2v technologies limited, Waterhouse Lane, Chelmsford, Essex CM1 2QU United Kingdom Telephone: +44 (0)1245 493493 Facsimile: +44 (0)1245 492492

e-mail: enquiries@e2v.com Internet: www.e2v.com Holding Company: e2v technologies plc

e2v technologies inc. 4 Westchester Plaza, PO Box 1482, Elmsford, NY10523-1482 USA Telephone: (914) 592-6050 Facsimile: (914) 592-5148 e-mail: enquiries@e2vtechnologies.us

EMC

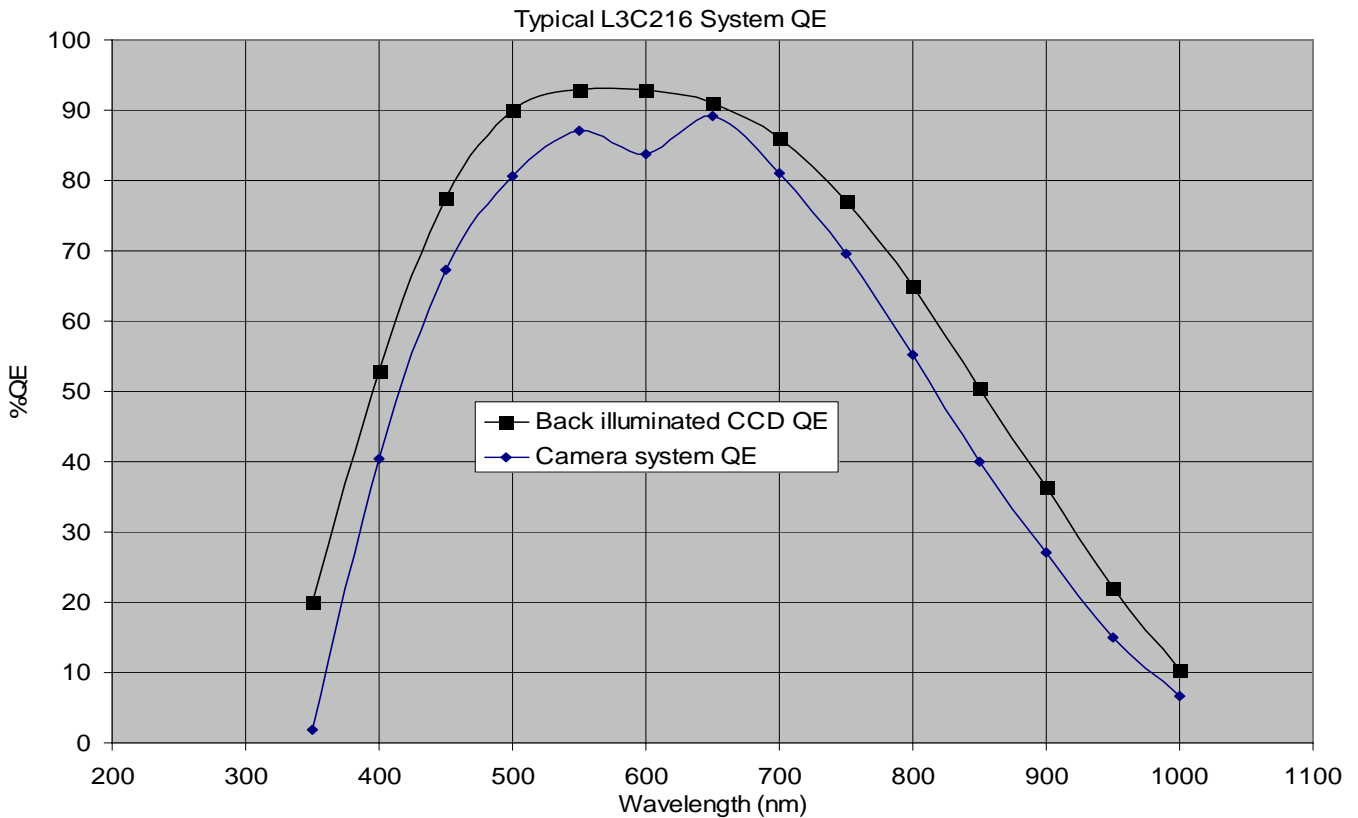
Emissions: EN61000-6-3:2007
FCC CFR47 Part 15, sub-part B, Aug 2006
ICES-003 Issue 4, 2004
AS/NZS CISPR 22: 2006
Compliant with VCCI 11th edition, 2006

Immunity: EN 61000-6-2: 2005

SAFETY

Due to its low input voltage, the L3C216 camera is outside the scope of the Low Voltage Directive (2006/95/EC). However, the camera will be assessed for safety with reference to IEC/UL/EN 60950-1. For this assessment it is assumed that a suitably certified AC/DC power supply for local conditions will be used to supply the camera's input DC voltage.

SENSOR QUANTUM EFFICIENCY



CAMERA CONTROL

Camera configuration can be modified either via the serial control path or via pushbuttons on the rear panel, in conjunction with a menu-driven on-screen display.

OVERVIEW CAMERA STATUS

Displays current operating parameters, e.g. video peak, video trough, exposure interval, EMCCD gain indicator, and histogram processing status.

ALC CONFIGURATION

Allows users to see what illumination levels, filtering, gamma, picture stretch and extended integration will be introduced.

FOCUS ASSIST

By selecting "Graph" on the on-screen menu a 'scope trace can help the user achieve optimum focus.

MANUAL CONTROL (VIA SERIAL LINK)

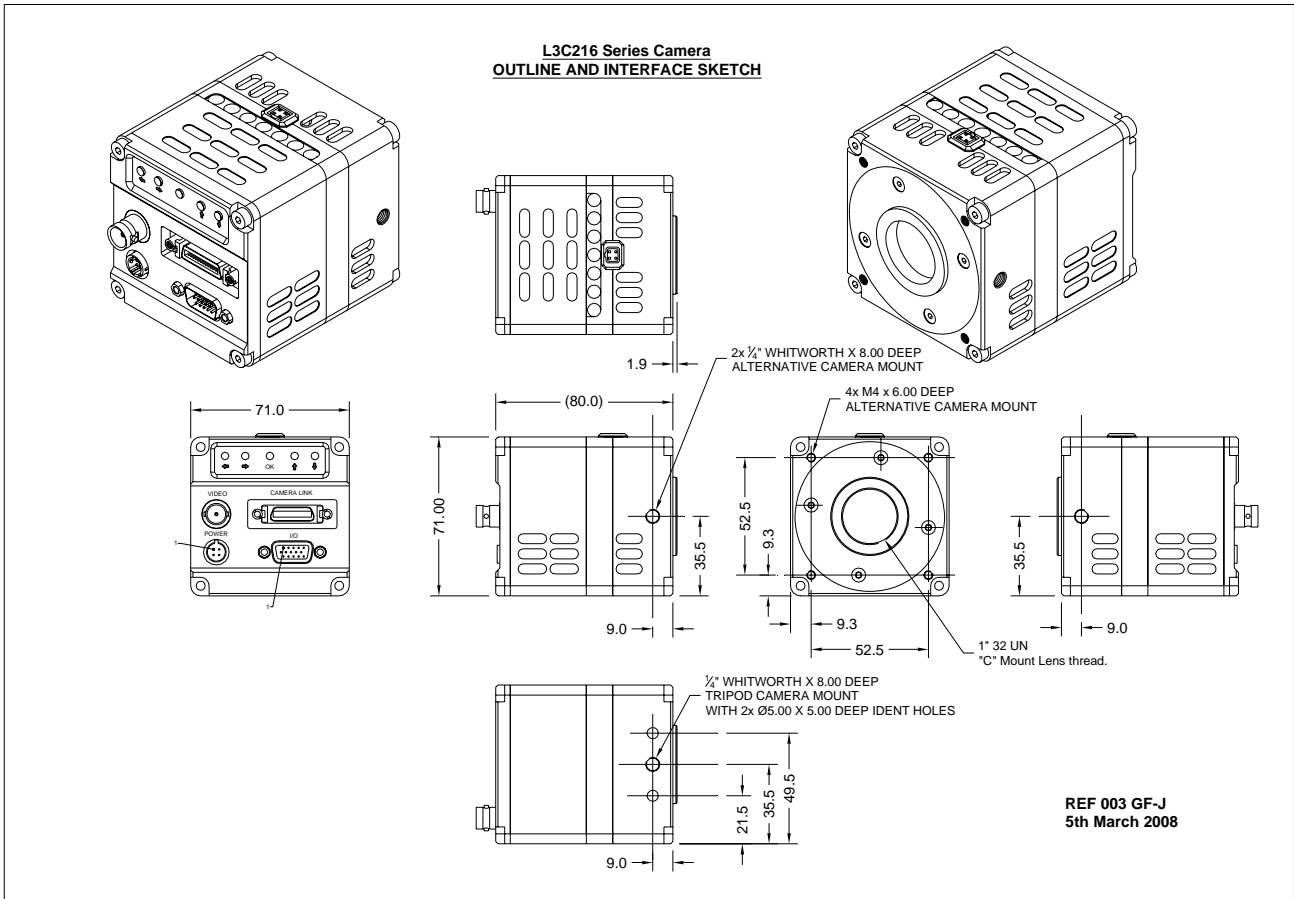
Allows the user to control the following features:

Exposure interval 1, 2, field periods
Reverse line readout on/off
Spatial filter sharper, softer, off
Temporal integration K= 1, 2, 4, 8, 16
Histogram processing stretch, equalise, or off
Output gamma off / 0.45 / S-curve

CAMERA BUILD STATE

Reports current firmware versions for FPGA and microcontroller.

OUTLINE



NOTES

1. The L3C216 camera is a commercial product and is not certified for automotive use in immunity-related functions. It may NOT be used for the control of a vehicle, a vehicular safety system or in a way that may disturb the driver, data bus or statutory devices fitted to a vehicle.
2. For low-light scenes, CCD cooling increases power consumed by around 4 W. For low ambient temperature situations, the LCP shutter heater intermittently draws up to a further 6 W.
3. Intelligent temperature control reduces overall power consumption.
4. For narrow band scene emissivity in the near infrared (above 600 nm), the resultant image may include some fringing.
5. Connectors and cabling on the rear plate must be allowed for.
6. Current drawn decreases as input voltage rises – switch mode supply.
7. At the upper temperature, extreme performance at low light level will have a lower signal-to-noise ratio due to higher CCD temperature.